United States Patent

Palenske et al.

[15] **3,681,795**

[45] **Aug. 8, 1972**

[54] **DOUBLE FOUR CORNER CONTOURED BEDSHEET**

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[73] Assignee: **Kimberly-Clark Corporation,** Neenah, Wis.

[22] Filed: **Nov. 9, 1970**

[21] Appl. No.: **87,930**

[52] **U.S. Cl.** .....**5/334 C,** 5/354

[51] **Int. Cl.** **A47g 9/00,** A47c 23/00

[58] **Field of Search**....5/334, 334 C, 335, 354, 354 B

[56] **References Cited**

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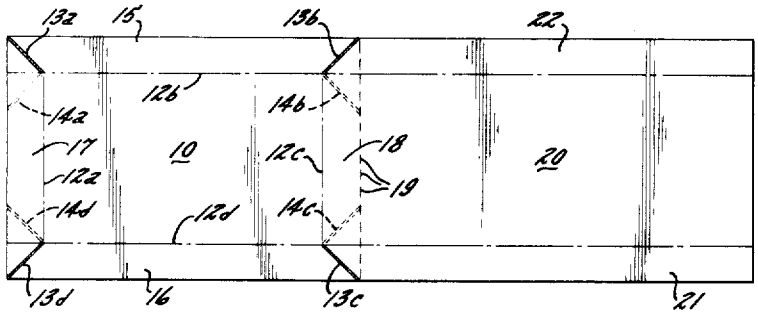
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2,662,234	12/1953	Citron	5/334

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[57] **ABSTRACT**

A combination contoured disposable bedsheet, comprising a top and bottom sheet combined to form one-piece disposable bed sheeting. In one embodiment the top and bottom sheets are joined along the entire width of the sheeting with the fold line between the top and bottom sheets being located at the bottom side panel of the "foot" portion of the bottom contoured sheet, the top sheet being folded upwards and toward the "head" portion of the bottom sheet to establish a convention bedsheet arrangement.

4 Claims, 9 Drawing Figures



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SHEET 1 OF 2

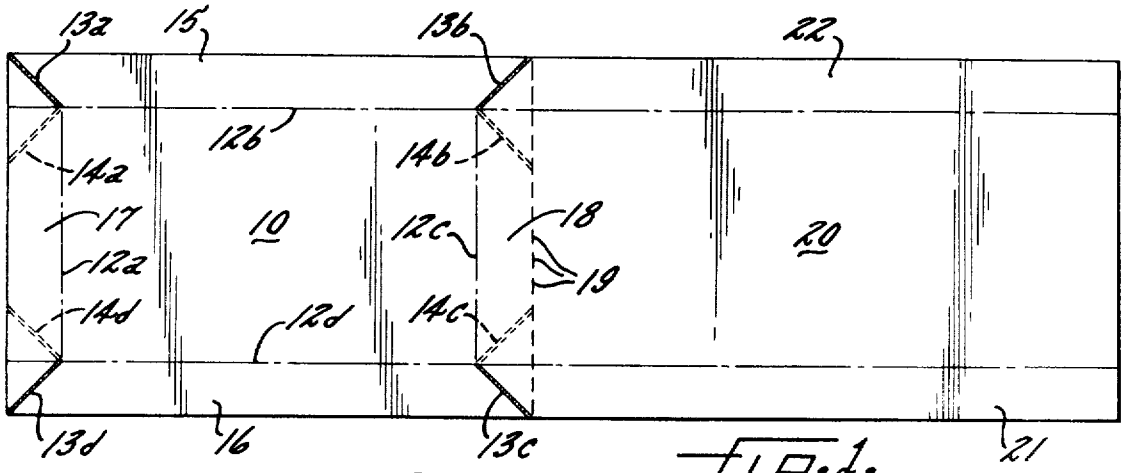


FIG. 1.

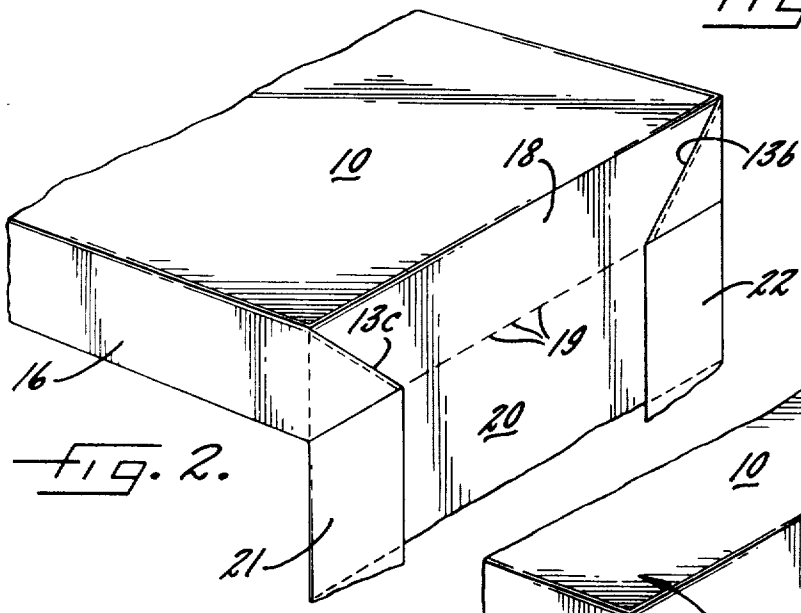


FIG. 2.

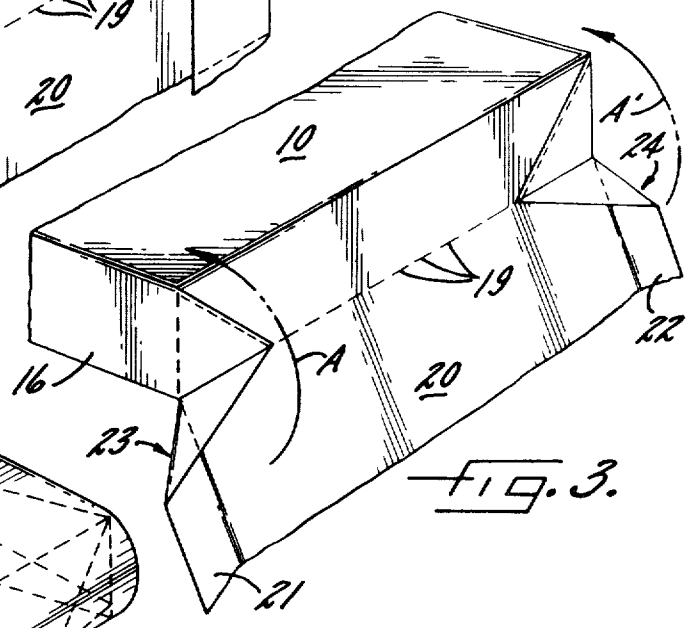


FIG. 3.

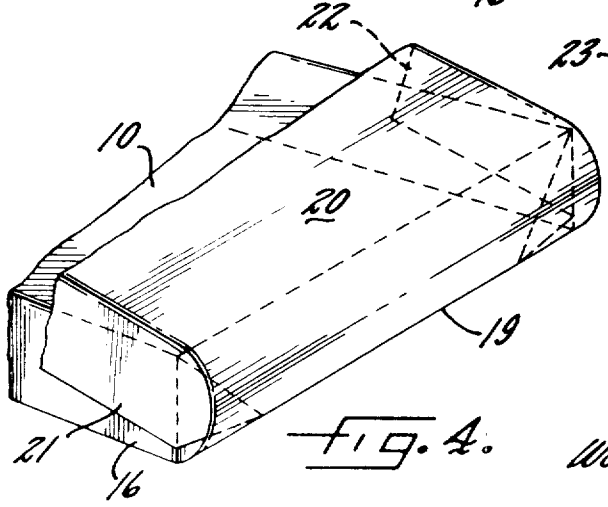
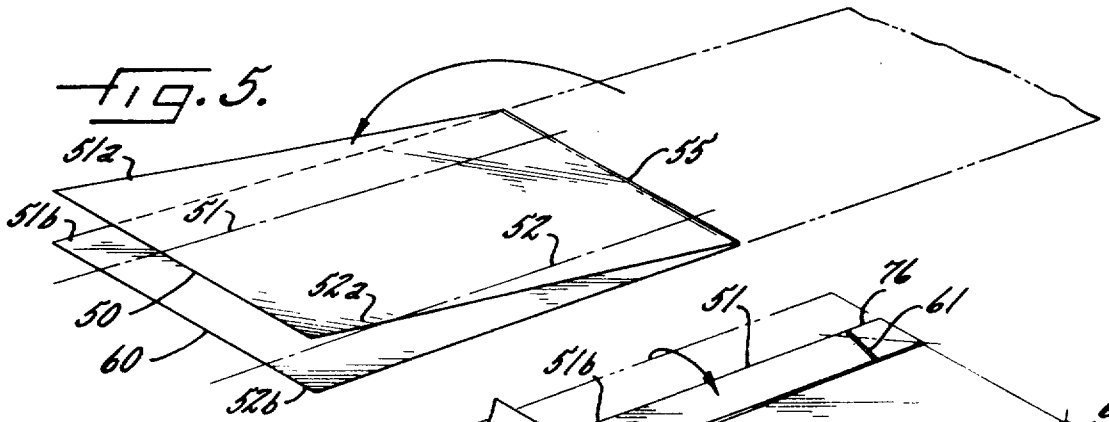


FIG. 4.

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Fig. 5.



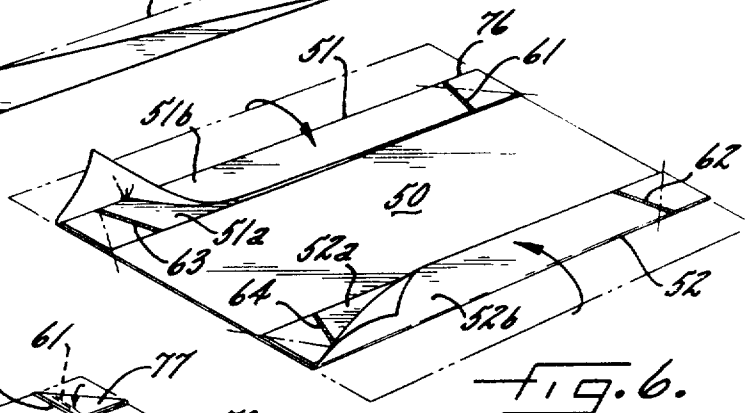
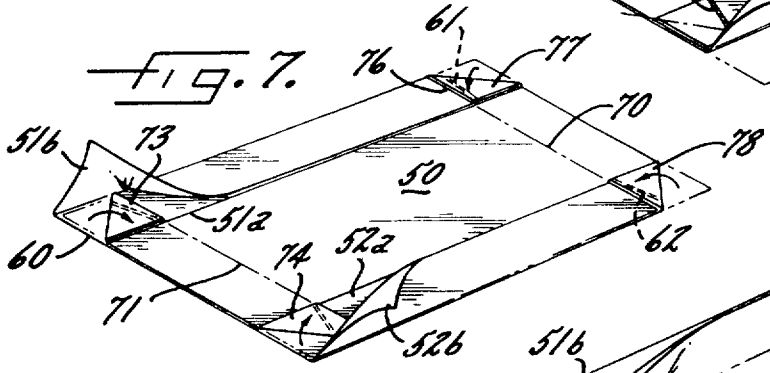


Fig. 6.

Fig. 7.



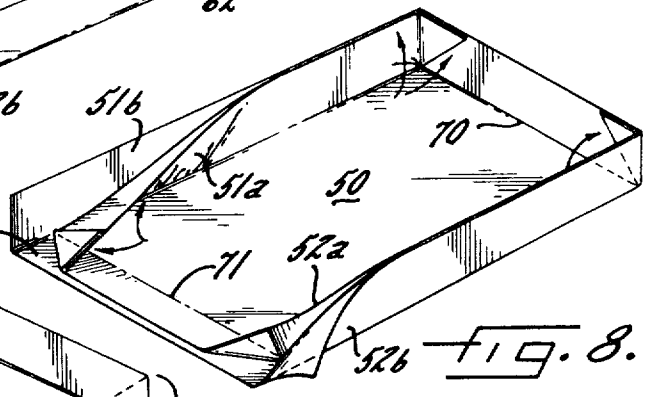


Fig. 8.

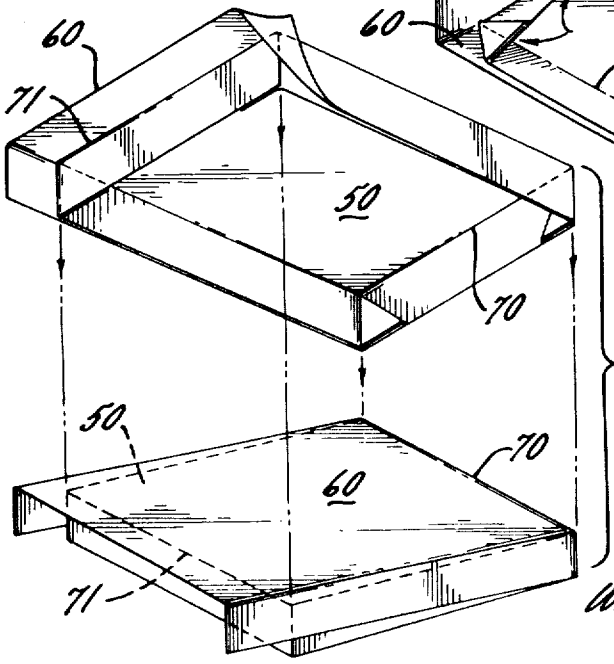


Fig. 9.

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DOUBLE FOUR CORNER CONTOURED BEDSHEET

RELATED INVENTIONS

"Fitted Bedsheet", Ser. No. 886,830, filed Dec. 22, 1969, by C.L. Palenske, U.S. Pat. No. 3,638,252, issued Feb. 1, 1972.

"Fitted Bedsheet", U.S. Pat. No. 3,321,782, issued May 30, 1967, by F.J. Hrubecky et al.

DESCRIPTION OF THE INVENTION

The present invention relates generally to bedsheets and, more particularly, to contoured bedsheets. The invention is especially applicable to sheets made from disposable materials but is equally useful in applications where other more permanent materials are employed.

Users of large numbers of sheets, such as hospitals, motels, etc., have encountered great difficulties in preventing the loss of conventional bedsheets. These organizations have created a demand for disposable bed sheeting which has resulted in several advances in the art of making disposable bedsheets. There have been recent inventions which have made the use of such sheets more practicable, but the inventions thus far have been limited primarily to creating more effective bottom sheets; consequently, a need still exists for an equally practicable disposable top sheet. The art requires that the material used for said sheets be very lightweight and as the bottom sheet may be fitted snugly around the four corners of a bed, the bottom sheet may use a lightweight material and remain securely in place. The top sheet, however, cannot be fitted or attached to the head of a bed and, due to the nature of the material, disposable top sheets are very apt to come free of the foot of the bed and become unsatisfactory in use.

Accordingly, it is a primary object of this invention to provide a disposable top sheet which will remain in position when placed in use.

Another object of this invention is to provide a combination of top and bottom sheets to allow more efficient usage of said sheets.

Another object of this invention is to provide a simple and economical method for manufacturing said sheets.

Another object is to provide such a sheet which is suitable for compact packaging.

Other objects and advantages will become apparent by reference to the following description and accompanying drawings, in which:

FIG. 1 is a top plan view of a blank for forming a bedsheet embodying the invention;

FIG. 2 is a perspective view of the foot end of a mattress fitted with a bottom contoured sheet embodying the invention, with the top sheet extending downward from the bottom panel of said bottom sheet;

FIG. 3 is a perspective view similar to FIG. 2 showing the panels of the top sheet pulled apart so that the top sheet is ready to be folded into position;

FIG. 4 is a view similar to FIG. 3 except the top sheet has been folded nearly into position;

FIG. 5 is a perspective view of a blank which is folded in half to form an alternate embodiment of the invention;

FIG. 6 is a perspective view of the folded sheet blank of FIG. 5 with the head panel ends lifted slightly to expose the adhesive applied to the head corners;

FIG. 7 is a perspective view of the sheet blank of FIG. 6 showing the fitted corners being formed;

FIG. 8 is a perspective view of the sheet blank of FIG. 7 with the end panel folded into position to conform with the configuration of a mattress; and

FIG. 9 is a perspective view illustrating how the sheet of FIG. 8 is placed on a mattress.

While the invention will be described in connection with certain preferred embodiments, it will be understood that it is not intended to limit the invention to these particular embodiments. On the contrary, it is intended to cover all alternatives, modifications, and equivalent arrangements as may be included within the spirit and scope of the invention.

Although a number of alternative designs may be utilized for the bottom sheet, for illustrative purposes, the fitted bottom sheets as disclosed in U.S. Pat. No. 3,321,782 and pending application Ser. No. 886,830 (both identified above) shall be discussed in this application as the preferred embodiments for the bottom sheet design.

Turning now to the drawings, in FIG. 1 there is illustrated a single piece of material which is divided into two portions, namely, a bottom sheet portion **10** and a top sheet portion **20**, by an imaginary line **19**. The bottom sheet portion **10** comprises a rectangle which is formed into a contoured sheet by applying an adhesive material along lines **13***a*, **13***b*, **13***c* and **13***d*, and then folding side panels **15** and **16** inwardly so that the adhesive lines **13***a*–**13***d* are at locations **14***a*, **14***b*, **14***c* and **14***d*, respectively. The four adhesive bound areas form the corners of the bottom contoured sheet; these same corners must be inverted, figuratively turning the sheet inside-out, to place the sheet in its usable configuration. This process of inversion places the panels **15**, **16**, **17** and **18** below the rectangle portion **10** as shown in FIG. **2**. These few simple operations form a complete contoured bottom sheet, with the central area defined by lines **12***a*, **12***b*, **12***c* and **12***d* corresponding to the plane dimensions of the mattress to be fitted and panels **15**, **16**, **17** and **18** forming the side panels to the sheet.

In accordance with the present invention, the foot end of the contoured bottom sheet is extended in the longitudinal direction so as to form a top sheet which is of unitary construction with the bottom sheet. Thus, in the illustrative embodiment, the top sheet portion **20** of the original blank forms a unitary, longitudinal extension of the foot end of the contoured bottom sheet formed from the blank portion **10**. When the side panels **15** and **16** of the bottom sheet are folded inwardly during fabrication of the contoured bottom sheet **10**, the contiguous, integral panels **21** and **22** of the top sheet portion are also folded inwardly. As a result, when the sheet **10** is placed on a bed so that the panel **18** is at the foot of the bed, as shown in FIG. **2**, the top sheet **20** formed by the unitary longitudinal extension of the panel **18** is in position to be folded upwardly over the mattress to form a top sheet which is held in place on the mattress by its unitary construction with the contoured bottom sheet.

As the panels **21** and **22** are positioned inward to cause them to assume their proper position relative to

the mattress, one need only to spread said panels slightly, generally along the lines indicated as **23** and **24** and shown in FIG. **3**. After the panels **21** and **22** have been spread, one need only fold the sheet **20** about line **19** as shown by arrows A and A' in FIG. **3**, until the sheet **20** is in its proper position as shown in FIG. **4**.

One unique aspect of this invention is that although the design of the illustrative bottom sheet **10** requires the inversion of the contoured corners to enable it to be fitted on a mattress, the act of inverting these corners does not alter the position of the top sheet **20**.

Turning now to FIG. **5**, there is depicted an alternate embodiment of the invention utilizing as the bottom fitted sheet, a sheet as described in the application Ser. No. 886,830, which is assigned to the assignee of this invention. In FIG. **5** there is illustrated a single piece of sheet material which is folded approximately in half about fold line **55** to form a top portion **50** and a bottom portion **60**. The bottom portion **60** comprises a rectangle which will be formed into the top sheet, and the top portion **50** comprises a rectangle which will be formed into the bottom contoured sheet. Those portions of the sheets denoted **51***a*, **51***b*, **52***a*, and **52***b* will form the side panels of their respective sheets. To form the combination top and bottom sheet the panels **51***a* and **51***b* are folded inward about line **51** until their surfaces are resting flat upon sheet portion **50** with panel **51**b directly above panel **51***a*. Panels **52***a* and **52***b* are folded inward in a like manner about line **52**. Adhesive lines are provided on the sheet blanks as illustrated in FIG. **6**; adhesive being placed on top of panels **51***b* and **52***b* at locations **61** and **62** and adhesive being placed on top of panels **51***a* and **52***a* at locations **63** and **64** (as shown in FIG. **6**, with the head corners of panels **51***a* and **52***a* lifted slightly). The foot corners **77** of both sheet panels **51**a and **51**b are then folded inward so that the edge area **76** of the corner **77** is placed directly over the adhesive line **61** as is shown in FIG. **7**. This step is then repeated for corner **78**.

To complete the formation of a fully contoured bottom sheet, the corners **73** and **74** of panels **51***a* and **52***a* are folded onto the adhesive lines **63** and **64** in the manner that was used to form the foot contoured portion of the sheet. The combination top and bottom contoured sheet is now fully formed. To place the combination top and bottom contoured sheet on a mattress, one need only fold the end panels along imaginary lines **70** and **71**, so that all side and end panels are perpendicular to the sheet portion **50**. In FIG. **8** there is depicted the invention with the foot end panel folded into position, with the head panel remaining to be folded upward about line **71**. After the head panel is folded into position, the combination sheet must be inverted to be placed on a mattress as shown in FIG. **9**. When the combination sheet is placed on a mattress, the top sheet will be in place above the bottom sheet with the foot end of the top sheet secured to the bottom sheet and the head portion of the top sheet free to allow ease of entry to the bed.

From the above description, it can be seen that no additional manufacturing steps are required beyond those steps necessary for the manufacture of the bottom sheet itself. Since the bottom and top sheets are connected, the top sheet will remain in position while in use, utilizing the fastening features of the bottom sheet. Moreover, the distribution of the sheets for use is made much more efficient, for the person placing said sheets on a bed need not check to see if there are both top and bottom sheets for each bed as one automatically has the proper distribution, i.e., one combination sheet for each bed. The manufacture of the combination sheet of this invention is extremely simple, yet it is entirely effective and, as the finished product is a thin flat item, is readily packageable.

While the invention has been described in conjunction with a fully contoured bottom sheet, it is only necessary that the foot of the bottom sheet have contoured corners. Thus a sheet which is folded over the head of the bed has contoured corners at the foot may be utilized as a bottom sheet portion.

We claim as our invention:

1. A bedsheet including a fitted bottom sheet portion and an overlying top sheet portion, said bedsheet being formed from a generally rectangular piece of flexible, nonwoven sheet material having a generally constant width throughout the length thereof, said rectangular piece being folded and adhesively bonded at selected locations, said bottom sheet portion having a central rectangular area, a pair of opposed side panels, and a pair of opposed end panels, each of said side panels being folded over in contiguous relation with said central rectangular area and said end panels, each of said side panels being bonded to at least one end panel by a line of adhesive extending diagonally from the outer edge of said side panel where it meets the outer edge of said end panel to a point at said fold generally coincident with the interior edge of said end panel, said side panel of said top sheet portion being outwardly folded along a diagonal line extending from the outer edge of said bottom sheet portion end panel to the outer edge of said top sheet portion side panel so that said top sheet portion lies generally flat over said bottom sheet portion when said bedsheet is placed on a mattress or the like.

2. A bedsheet as defined in claim **1** wherein each of said side panels are bonded to each of said end panels.

3. A bedsheet including a fitted bottom sheet portion and an overlying top sheet portion, said bedsheet being formed from a generally rectangular piece of flexible, nonwoven sheet material having a generally constant width throughout the length thereof, said rectangular piece being folded and adhesively bonded at selected locations, said top and bottom sheet portions having a central rectangular area, a pair of opposed side panels, and foot end panels, each of said side panels of said top and bottom sheet portions being folded over in contiguous relation with said central area and said end panels, each of said side panels of said top sheet portion being bonded to at least said top sheet portion foot end panel by a line of adhesive extending diagonally from a point along the outer edge of said top sheet portion side panels to the point where the inner edge of said top sheet portion side panel meets the inner edge of said top sheet portion foot end panel, said adhesive bonding near said foot end panel being effective to produce fitted corners for both the top and bottom sheet portions at the foot end of said bedsheet.

4. A bedsheet as defined in claim **3** wherein said bottom sheet portion includes a head end panel, said bottom sheet portion side panels being bonded to said bot-

tom sheet portion head end panel by a line of adhesive extending diagonally from a point along the outer edge of said bottom sheet side panels to the point where the inner edge of said bottom sheet portion side panel meets the inner edge of said bottom sheet portion foot panel to produce fitted corners for said bottom portion at the head end of said bedsheet.

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